

ABSTRACT OF THE DISCLOSURE

A CVD Method of forming gate dielectric thin films on a substrate using metalloamide compounds of the formula $M(NR^1R^2)_x$, wherein M is selected from the group consisting of: Zr, Hf, Y, La, Lanthanide series elements, Ta, Ti, Al; N is nitrogen; each of R1 and R2 is same or different and is independently selected from the group consisting of H, aryl, perfluoroaryl, C₁-C₈ alkyl, C₁-C₈ perfluoroalkyl, alkylsilyl and x is the oxidation state on metal M; and an aminosilane compound of the formula $H_xSi(NR^1R^2)_{4-x}$, wherein H is hydrogen; x is from 0 to 3; Si is silicon; N is nitrogen; each of R1 and R2 is same or different and is independently selected from the group consisting of H, aryl, perfluoroaryl, C₁-C₈ alkyl, and C₁-C₈ perfluoroalkyl. By comparison with the standard SiO₂ gate dielectric materials, these gate dielectric materials provide low levels of carbon and halide impurity.